



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,970	03/26/2004	Mong-Song Liang	24061.197 (2003-1506)	9657
42717	7590	06/17/2005	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			DANG, PHUC T	
			ART UNIT	PAPER NUMBER
			2818	
DATE MAILED: 06/17/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/810,970

Applicant(s)

LIANG ET AL.

Examiner

PHUC T. DANG

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 6, 12, 18-22 and 46 is/are rejected.
- 7) ☒ Claim(s) 2, 4, 5, 7-11, 13-17, 23-45, 47 and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 032604.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2818

DETAILED ACTION

Information Disclosure Statement

1. The office acknowledges receipt of the following items from the applicant:

Information Disclosure Statement (IDS) filed on March 26, 2004.

Specification

2. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 2-15 are objected to because of the following reasons:

In claims 2-15, a term "treatment" should replace by – treatments – after the first and second....

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 18-22 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pheng et al, hereinafter "Pheng" (U.S. Patent No. 6,899,857) in view of Kinard et al., hereinafter "Kinard" (U.S. Patent No. 5,287,081).

Regarding claims 1 and 22, Pheng discloses an integrated method comprising:

Art Unit: 2818

providing a low dielectric material (104, Fig. 1B);
applying a first treatment (302, Fig. 3) altering a first property of the low dielectric material (104, Fig. 1B); and
applying a second treatment (304, Fig. 3) altering a second property of the treated low dielectric material (104, Fig. 1B).

Pheng discloses all the features of the claimed invention as discussed above, but does not disclose a step of reducing a lower dielectric material with better mechanical stability in the process.

Kinard, however, discloses a step of reducing a lower dielectric material with better mechanical stability in the process [col. 4, lines 45-59].

It would have been obvious to one having ordinary skilled in the art at the time the invention was made to modify the above discussed teaching of Pheng as taught by Kinard for a purpose of providing highly reliable performance.

Regarding claims 18 and 20, Pheng discloses a step of applying a first treatment comprises removing pore generations and lowering from the low dielectric material [see col. 8, lines 28-32].

Regarding claims 19 and 21, Pheng discloses a step of applying a second treatment comprises strengthening and healing the treated low dielectric material [see col. 9, lines 4-8].

Claim 46 is rejected as the same as claims 1 and 22 including a substrate (100, Fig. 1A); conductive element (102 a, Fig. 1 A) disposed above the substrate (100, Fig. 1A).

Art Unit: 2818

5. Claims 3, 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pheng and Kinard in view of Hyodo et al., hereinafter "Hyodo" (U.S. Publication No. US 2005/0042884 A1).

Pheng discloses all the features of the claimed invention as discussed above, but does not disclose the method treatment are applied in the claims 3, 6 and 12 for the first and second treatments in the process.

Hyodo, however, discloses the method treatment are applied in the claims 3, 6 and 12 for the first and second treatments in the process [see paragraph [0018]].

It would have been obvious to one having ordinary skilled in the art at the time the invention was made to modify the above discussed teaching of Pheng as taught by Hyodo for a purpose of providing better performance.

Allowable Subject Matter

6. The following is a statement of reason for the indication of allowable subject matter:

Claims 2, 4-5, 7-11, 13-17, 23-45 and 47-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

None of the prior art made of record does not disclose the limitations of the claims 2, 4-5 and 7-11, 13-17, 23, 27, 33, 39, 42-45 and 47-48.

Claims 24-26, 28-32, 34-38, and 40-41 are directly or indirectly depend on claim 23, 27, 33 and 39, then, they also would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

Art Unit: 2818

Conclusion


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is (571) 272-1776. The examiner can normally be reached on 8:00 am-5:00 pm.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and After Final communications.

9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Phuc T. Dang

PP



Primary Examiner

Art Unit 2818